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APPENDIX 2

EUROPEAN FORMULA 3 OPEN 2012
TECHNICAL REGULATIONS

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0. Admitted vehicles

0.1 Make, model, type:

Only the single-seaters cars manufactured by Dallara Automobili and supplied by GT Sport, models F300, F305/6, F308 and F312 will be eligible for the European F3 Open, with their authorised evolutions,. Regarding the mechanical configuration, no modification or substitution not expressly allowed in these regulations will be admitted, except those necessary setups or the necessary parts for the explotation of the car (data acquisition sensors, time-keeping devices, means of elevation, etc.). In this last case, any modification will be required to the Technical Commision of the Spanish Federation and to the Organising Committee in writing.

0.2. Spare Parts

Any element being integral part of the vehicle at the moment of delivery shall only be sustituted for other element of the same shape, material, make and model of those defined in these regulations.

Only the Marshals toguether with Organising Committee will be able to determine, , the validity and/or equality of the different spare parts or the replacement of the single-seater car. If these are not able to determine this validity, the manufacturer will be in charge to provide it.

0.3. Preservation, maintenance and image

It is compulsory to correctly carry out all service operations according to the users manual issued by GT Sport. If the Organising Committee considers that the preservation or maintenance of any of the single- seater cars is not the correct one, they may take the necessary steps within the frame of the spoirting discipline ir order to preserve the championships image.

0.4. Documentation

The Organising Committee shall issue and supply to each participant, as a complement of these regulations, the following elements, that besides, shall be considered as part of the applicable regulations:

- Chassis user's manual (F300, F305/6, F308 and F312) with the authorised evolution kits authorised and its up-dates.
- Engine user's manual
- List of spare parts (F300, F305/6, F308 and F312)

Any complementary documentation or appendix/ modification/ extension/ up-date to the regulations or mentioned manuals issued from the date of approval of the present regulations shall also be part of this complementary documentation.

The Organising Committee keeps the right to introduce those evolutions the chassis manufacturer (Dallara Automobili) market at any moment, providing these are approved by the FIA &/or Spanish Federation.

1: DEFINITIONS

1.1 Formula 3 car:

Automobile designed solely for speed races on circuits or closed courses.

1.2 Automobile:

Land vehicle running on, at least four non aligned complete wheels, of which at least two are for steering and at least two for propulsion.

1.3 Land vehicle:

A locomotive device propelled by its own means, moving by constantly taking real support on the earth's surface, of which the propulsion and steering are under the control of a driver aboard the vehicle.

1.4 Bodywork:

All entirely sprung parts of the car in contact with the external air stream, except the rollover structures and the parts definitely associated with the mechanical functioning of the engine, transmission and running gear. Air boxes and radiators are considered to be part of the bodywork.

1.5 Wheel:

Disk and wheel assembly

1.5.1. Complete wheel: disk, wheel and tyre assembly.

1.6 Automobile Make:

In the case of Formula racing cars, an automobile make is a complete car. When the car manufacturer fits an engine, which it does not manufacture, the car shall be considered a hybrid and the name of the engine manufacturer shall be associated with that of the car manufacturer. The name of the car manufacturer must always precede that of the engine manufacturer.

Should a hybrid car win a Championship Title, Cup or Trophy, this will be awarded to the manufacturer of the car.

1.7 Event:

An event shall consist of official practice and the race.

1.8 Weight:

It is the weight of the car with the driver, wearing his complete racing apparel, at all times during the event.(see Art. 24 SR)

1.9 Racing weight:

It is the weight of the car in running order with the driver aboard and all tanks must be at the working level.(see Art. 24 SR)

1.10 Cubic capacity:

The volume induced in the cylinders of the engine by the movement of the pistons. This volume shall be expressed in cubic centimetres. When calculating engine cubic capacity, the number pi shall be 3.1416.

1.11 Supercharging:

Increasing the weight of the charge of the fuel/air mixture in the combustion chamber (over the weight induced by normal atmospheric pressure, ram effect and dynamic effects in the intake and/or exhaust system) by any means whatsoever. The injection of fuel under pressure is not considered to be supercharging.

1.12 Intake system:

They are all the elements between the cylinder head and the external side of the air restrictor.

1.13 Main structure:

The fully sprung structure of the vehicle to which the suspension and/or spring loads are transmitted, extending longitudinally from the foremost front suspension on the chassis to the rearmost one at the rear.

1.14 Sprung suspension:

The means whereby all complete wheels are suspended from the body/chassis unit by a spring medium.

1.15 Active suspension:

Any system, which allows control of, any part of the suspension or of the trim height when the car is moving.

1.16 Cockpit:

The volume, which accommodates the driver.

1.17 Survival cell:

A continuous closed structure containing all fuel tanks and the cockpit.

1.18 Composite structure:

Non-homogeneous materials, which have a cross-section comprising either two skins, bonded to each side of a core material or an assembly of plies, which form one laminate.

1.19 Telemetry :

The transmission of data between a moving car and anyone connected with the entry of that car from the outside.

1.20. Semi-automatic gearbox:

One which, when the driver calls for a gear change, takes over the control of one or more of the engine, clutch and gear selectors momentarily to enable the gear to be engaged.

1.21. Cockpit padding:

Non-structural parts placed within the cockpit for the sole purpose of improving driver comfort and safety. All such material must be quickly removable without the use of tools.

1.22. Engine and gearbox assembly:

The parts of the engine and gearbox that have to remain unchanged are:

- Gearbox housing
- Bell housing
- Cylinder block
- Cylinder head
- Oil sump
- Valves cap
- Complete intake system including the air box
- Differential
- Final reduction

1.23. Car center line

The straight line running through the point halfway between the centres of the two forward skid block holes and the centre of the rear skid block hole (see Drawing 6).

ARTICLE 2: REGULATIONS

2.1 Role of the FIA:

The following technical regulations for Formula 3 cars are issued by the FIA, along with the technical particularitities of the European Formula 3 Open.

2.2 Amendments date publication:

Before the start of each season of the European Formula 3 Open, the Organising Committee, with the approval of the FIA &/or RFE de A, will issue the changes introduced in these regulations.

Changes made for safety reasons may come into force without previous notice.

2.3 Notice for change in the air restrictor:

The Organising Committee, with the authorisation of FIA &/or RFE de A, reserves the right to modify the dimensions of the air restrictor within a sufficient period of time.

2.4 Permanent compliance with regulations:

Automobiles must comply with these regulations in their entirely at all times during an event.

2.5 Measurements:

All measurements must be made while the car is stationary on a flat horizontal surface.

2.6 Technical passport:

All competitors must be in possession of a technical passport for their car, which will be issued by the Organising Committee and must accompany the car at all times.

No car will be eligible in an event unless the passport is available for inspection at initial scrutineering. (see sporting regulations)

2.7 Changes to car design :

2.7.1 The survival cell, the frontal and rear impact absorbing structure, the collapsible steering column (see art. 18.1), the gearbox, the front wing main plane, the engine-gearbox assembly, the steering rack assembly, the front and rear uprights including hubs, the fuel system and the fire extinguishing system must be homologated by the rolling chassis manufacturer. The rolling chassis manufacturer must supply detailed drawings to identify the homologated parts in addition to a commercial price list.

Modifications to the homologated survival cell may be carried out by the chassis manufacturer in order to facilitate the installation of new ancillaries, provided this is the sole purpose.

2.7.2 From the date of homologation the survival cell, the frontal impact absorbing structure and the collapsible steering column (see art. 18.1) must remain unchanged for three complete seasons.

2.7.3 From the date of homologation, the front wing main plane, the engine-gearbox assembly, the steering rack assembly, the front and rear uprights including hubs, the fuel tank and the fire extinguishing system must remain unchanged for a complete season. After this period, these parts may be changed after its re-homologation.

In this case, the rolling chassis manufacturer must supply detailed drawings to identify these re-homologated parts in addition to a price list. The manufacturer must also offer an upgraded kit, which includes all the re-homologated parts and the price of the re-homologated parts may not differ from the price of the previously homologated parts.

2.7.4. Non homologated parts may only be attached to homologated car components (e.g. rear roll structure) by bonding which does not change the surface or structure of the homologated component (like double sided tape, silicone but no 2-component bonding systems) and which allows the parts to be removed without the use of tools; or by bolting using existing bolt holes.

2.7.5. No change on the design of any part is allowed for the European F3 Open eligible cars.

2.8. Adhesive tapes:

2.8.1. The use of tape or similar, preferably of the same colour of the pontoons, is authorised at the air intake/air flow of the radiators to regulate the temperature of the engine.

2.8.2. The adding of tape or similar to cover the regulation of the adjuster side plate regulation pertaining to the front and/or rear wing assembly is authorised. On this purpose this tape may be only added on the outer adjuster side plate.

2.8.3. In all the cases the fixing of the tape must be authorised by the Marshals.

2.8.4. The fixing of the tape cannot represent any aerodynamic improvement. In case of doubts on the teams side, it must be consulted to the Marshals.

2.8.5. The fixing of the tape must not cover, in any case, the compulsory publicity.

2.8.6. It is permitted to cover the edges of the air intakes of the side-pods with high resistance tape, preferably transparent for the sole purpose of protecting its surface of impacts during driving on the track (stones, etc.)

2.8.7. It is authorized to fix tape on the head protection system (paddy) fixations providing this tape can be easily taken out and this fixation be accepted by the Marshals.

No change is authorised in the design of the parts of the cars eligible in the European F-3 Open , except those expressly stated in the regulations.

ARTICLE 3: BODYWORK AND DIMENSIONS

3.1 Wheel centre line:

The centre line of any wheel shall be deemed to be half way between two straight edges, perpendicular to the surface on which the car is standing, placed against opposite sides of the complete wheel at the centre of the tyre tread.

3.2. Height measurements:

All measurements will be taken normally in and from the reference plane (**applicable to chassis 308** & 312).
All height measurements will be taken with the car in race normal conditions and with the driver aboard in a normal driving position.

3.2.1. The height of the car for the European Formula 3 Open 2012 will be…(see chassis user's manual F300, F305/6 and F308)

3.3.Overall width:

The overall width of the car including complete wheels shall not exceed 185cm, with the steering wheels in the straight-ahead position.

3.3.1. The width of the car for the European Formula 3 Open 2012 will be (see chassis user's manual F300, F305/6, F308 and F312)

3.4. Width behind the front wheels (applicable to chassis 308 & 312)

The maximum width of the bodywork situated behind a point lying 280mm behind the front wheel centre line and the rear wheel centre line is 1300mm

3.5. Width behind the rear wheels center line(applicable to chassis 308 & 312)

3.5.1) Bodywork behind the rear wheel centre line must not exceed 900mm in width.
3.5.2) Except for fixation, the lateral extremities of any bodywork behind the rear wheel centre line must be flat.

3.6. Overall height)

Except for the rollover structures, no part of the car can be higher than 860mm above the reference plane. However, any part of the rollover structures more than 860mm above the reference plane must not be shaped to have a significant aerodynamic influence on the performance of the car.

(applicable to chassis 308 & 312

Overall Heith

Except for the rollover structures, no part of the car can be higher than 90 cm from the ground. However, any part of the rollover structures more than 90 cm from the ground must not be shaped to have a significant aerodynamic influence on the performance of the vehicle.

3.7. Front bodywork

3.7.1. Front bodywork height:

3.7.1.1 The bodywork situated forward of a point lying 280mm behind the front wheel centre line is limited to a maximum width of 1300mm.
3.7.1.2 Except for fixation, the lateral extremities of any bodywork forward of the front wheels must be flat and, in order to prevent tyre damage to other cars, at least 10mm thick within a radius of 5mm on all edges. The lateral extremities must fit in the volume formed by planes running 640mm [+0mm/–1mm] and 650mm parallel to the car centre line and normal to the reference plane, 330mm and 900mm forward and parallel to the front wheel centre line and normal to the reference plane and 40mm and 340mm above and parallel to the reference plane.
(**Applicable to F312)**

All the bodywork ahead 280 mm behind de front axle, and more than 280 mm of the vehicle's centre line, must not be bellow 40 mm. nor over 340 mm of the reference plane.
(**Applicable to F308)**

3.7.2. Front bodywork height:

All bodywork situated forward of a point lying 280mm behind the front wheel centre line, and more than 250mm from the centre line f the car, must be no less than 40mm and no more than 340mm above the reference plane.

Except for the air ducts described in Article 11.4, no bodywork is permitted within the volume defined by the following six planes: a plane vertical to the reference plane and 65 mm parallel to the car centre line, a plane vertical to the reference plane and 900 mm parallel to the car centre line, a plane vertical to the reference plane and normal to the car centre line and 330 mm forward of the front wheel centre line, a plane vertical to the reference plane and normal to the car centre line and 280mm behind the front wheel centre line, the reference plane and a plane 200 mm above the reference plane.
(Applicable to F312)

No part of the bodywork in front of the rear edge of the complete front wheels and more than 25cm from the longitudinal centre line of the car may be closer than 40mm to the reference plane referred to in Article 3.13. or over the height of the front wheel rims.

3.7.3. Front wing main plane

The front wing main plane is homologated and may not be modified in any way.
At least 90% of the total surface of the homologated front wing main plane must be in contact with the external air stream when the car is running on the track.
The lateral extremities of the front wing assembly (the front wing end plates) must be orientated vertical to the reference plane, parallel to the car centre line and directly attached to the homologated front wing main plane (meaning no other parts are allowed between the homologated front wing main plane and the front wing end plate).
With the exception of the lateral extremities (the front wing end plates) and the fixation points (inserts / holes) for the homologated front wing hangers (including spacers or shims between the hangers and the main plane) and for the non homologated front bodywork (Article 3.7.3.1), the front wing main plane must be a single, smooth, rigid, continuous element without any slots, gaps, attachments or dividers in order that only one single continuous section may be contained within any cross section taken parallel to the car centre line and normal to the reference plane.
Within 15 mm from the trailing edge of the homologated main plane Gurney flaps may be attached and for this purpose inserts / holes are permitted in this area.

3.7.3.1 Non homologated front bodywork attached to the front wing main plane

Non homologated bodywork forward of a point lying 280mm behind the front wheel centre line is permitted in a box either side of the car centre line formed by planes running 250mm and 640mm [+0mm/–1mm] parallel to the car centre line and normal to the reference plane, 330mm and 660mm forward and parallel to the front wheel centre line and normal to the reference plane, 40mm and 340mm above and parallel to the reference plane and a plane running through a straight line parallel to and 465mm forward of the front wheel centre line and 340mm above the reference plane and another straight line parallel to and 660mm forward of the front wheel centre line and 210mm above the reference plane.
Additional bodywork within these boxes may only be fitted by using the original fixation points (inserts / holes) on the homologated front wing main plane.

3.7.3.2 Front bodywork exclusion zone around the front wing main plane

No bodywork is allowed inside a volume formed by the reference plane, two longitudinal planes which run normal to the reference plane and 250mm parallel to the car centre line either side and two planes which run normal to the reference plane and parallel to and 330mm and 1000mm forward of the front wheel centre line, except for the following components:
- homologated frontal impact absorbing structure,
- homologated front wing hangers,
- homologated front wing hanger covers,
- homologated front wing main plane (as per homologation drawing).

Spacers or shims between the front wing hangers and the front wing main plane or the frontal impact absorbing structure are allowed for the sole purpose to bring the front wing main plane to its legal position.
(Applicable to F312)

3.8 Height in front of the rear wheels:

With the exception of engine airboxes, intake manifold shrouds joining directly the engine airbox with the bodywork and rear view mirrors (including their supports), no part of the bodywork lying 280mm forward of the rear wheel centre line and more than 550mm above the reference plane may project more than 310mm each side of the car centre line.
Except for the engine airbox and the associated intake manifold shroud, any vertical to the reference plane cross section of the bodywork which is taken normal to the car centre line within a volume defined by a plane vertical to the reference plane and normal to the car centre line and 330mm forward of the rear wheel centre line, a plane vertical to the reference plane and normal to the car centre line and 650 mm forward of the rear edge of the cockpit entry template as described in Drawing 1, a plane vertical to the reference plane and 310 mm parallel to the car centre line, a plane vertical to the reference plane and 650 mm parallel to the car centre line, a plane 100 mm above the reference plane and a plane 550 mm above the reference plane must form one continuous line on its external surface with a radius of no less than 75mm. Within the described volumes devices in order to keep the floor in the correct position are permitted as long as the cross section of these devices is circular or rectangular.

The surfaces lying within this volume, which are situated more than 335 mm forward of the rear wheel centre line, must not contain any apertures (other than those permitted by Article 3.8.1) or contain any vertical surfaces which lie normal to the car centre line.

3.8.1) Once the relevant bodywork surfaces are defined in accordance with Article 3.8, apertures may be added for the following purposes only:
- a single aperture either side of the car centre line for the purpose of the exhaust exit. The bodywork edge of this aperture may have a maximum distance of 10 mm to any point lying on the circumference of the exhaust pipe.
- rectangular apertures either side of the car centre line for the purpose of allowing suspension members and driveshafts to protrude through the bodywork. No such aperture may have an area greater than 5,000mm² when projected onto the surface itself. No point of such an aperture may be more than 100mm from any other point on the aperture.

(Applicable to F312)

With the exception of the engine air boxes, no part of the bodywork 280 mm forward the rear wheel axle and more than 550 mm over the reference plane may project beyond 450 mm each side of the centre line of the car.
(Applicable to F308)

3.9 Height in front of the rear wheels

No part of the bodywork between points lying 280mm forward of and 250mm behind the rear wheel centre line and more than 550mm above the reference plane may be more than 150mm from the car centre line.
(Applicable to F312)

With the exception of the engine air boxes, no part of the bodywork ahead the front edge of the complete rear wheels and below the total height of the rear wheels may generate any vertical projection more than 45 cm at each side of the car centre line.

3.10. Height between the rear wheels.

No part of the bodywork situated between one point lying 280 mm forward and 250 mm behind the rear axle and 550 mm over the reference plane may be situated more than 150 mm from the car centre line.
(Applicable to chassis F308 & F312)

Height between the rear wheels:

No part of the bodywork between the front edge of the complete rear wheels and 25cm behind the rear wheel centre line and higher than the complete rear wheels may be more than 15cm from the centre line of the car.

3.10. Bodywork between and behind the rear wheels.

No part of the bodywork behind a point lying 280 mm forward the rear wheel axle may incorpore more than 3 aerodynamic sections.
(Applicable to chassis F308 & F312**)**

All aerofoil sections used in this area must conform to one of the three sets of dimensions given in Appendix 1. Each of the dimensions given must remain nominally at the same height above the reference plane over the entire width of the relevant aerofoil section.
No holes, apertures or slots are permitted in any of these aerofoil sections.
No trim tabs may be added to any of these aerofoil sections.
However, devices to keep the space between sections constant may be used provided it is clear that this is their only purpose
A tolerance of +/- 1.0mm will be permitted on any stated dimension
(Applicable to F312)

Bodywork behind the front edge of the complete rear wheels

Behind the front edge of the complete rear wheels, a maximum of three aerofoil sections may be used. All aerofoil sections used in this area must conform to one of the three sets of dimensions given in appendix 1 of these Regulations.

Each of the dimensions given must remain nominally at the same height above the reference plane over the entire width of the relevant aerofoil section.

No trim tabs may be added to any of these aerofoil sections. However, devices to keep the space between sections constant may be used provided it is clear that this is their only purpose.

A tolerance of ± 1.0 mm will be permitted on any stated dimension.

3.11. Bodywork around the front wheels.

With the exception of brake cooling ducts, in plan view, there must be no bodywork in the area formed by two longitudinal lines parallel to and 200mm and 900mm from the car centre line and two transversal lines, one 330mm forward and one 480mm behind the front wheel centre line
(Applicable to F308 & F312)

In plan view no bodywork is permitted within an area defined by a line normal to the car centre line and 280mm behind the front wheel centre line, a line normal to the car centre line and 850 mm ahead of the rear edge of the cockpit entry template, a line 650 parallel to the car centre line and a line running through a point 200mm from the car centre line and 280mm behind the front wheel centre line and a point 290mm from the car centre line and 850 mm ahead of the rear edge of the cockpit entry template.
This does not apply to any parts of the rear view mirrors (including their supports), which are visible in the described area, provided each of these areas does not exceed 9000mm² when projected to a plane above the car which is parallel to the reference plane. The rear view mirror supports must have a circular cross section.
(Applicable to F312)

Bodywork arond the front wheels

With the exception of braking cooling ducts it must not exist, in plan view, any part of the bodywork in the area delimited by two longitudinal lines parallel to the car's longitudinal centre line and distant from it 40 cm. And 90 cm and two transversal lines, one 5 cm forward the front edge and the other 20cm behind the rear wheels axle.

3.12. Bodywork facing the ground

All sprung parts of the car situated more than 280 mm behind the front wheel centre line and more than 280 mm forward the rear wheel centre line, visible from underneath, must form plane surfaces placed in one or two parallel planes, the reference plane and the step plane.

This concept will not be applied to the visible part of rear mirrors, providing this area does not exceed 9000 m2 projected on a horizontal plane above the car. The step plane must be 50 mm above the reference plane.

Additionally, the parts lying on the reference plane must:

- Extend from a point lying 280 mm behind the front wheel centre line to a point lying 280 mm forward of the wheel centre line
- Have a minimum and maximum width of 300 mm (+- 3 mm) 500 mm.
- Be symmetrical about the car's centre line
- Be made of wood nominally 5mm thick.

All parts lying on the reference and step planes, or the transition between both, must produce uniform , solid, hard, continuum, rigid (no freedom degree respect the assembly bodywork-chassis) and impervious surfaces under any circumstance.

The peripheries of the surfaces formed by the parts lying on the reference and step planes may be curved upwards with a maximum radio of 25 and 50 mm respectively. The surface formed by the parts lying on the reference plane must be connected at its extremities vertically to the parts lying on the step place and any radius which forms the transition between the two planes my have a maximum radius of 25 mm.

To overcome any possible manufacturing problems, a tolerance of +- 5 is permitted across these surfaces.
All sprung parts of the vehicle situated behind the point 280 mm forward the rear wheel axle, visible from underneath and more than 150 mm (+-1.5 mm) from the car's centre line, must be at least 50 mm above the reference plane.
(Applicable to F308 & F312)

In an area lying 650mm or less from the car centre line, and from 450mm forward of the rear face of the cockpit entry template to 245mm rearward of the rear wheel centre line, any intersection of any bodywork visible from beneath the car with a lateral or longitudinal vertical plane should form one continuous line which is visible from beneath the car.
Compliance with Article 3.12 must be demonstrated with all unsprung parts of the car removed.
(Applicable to F312)

Bodywork facing the ground
Between the rear edge of the complete front wheels and the front edge of the complete rear wheels, all sprung parts of the car visible from underneath must lie on one of the two parallel planes, the reference plane or the step plane. This does not apply to any parts of the rear view mirrors which are visible, provided each of these areas does not exceed 9000 mm2 when projected to a horizontal plane above the car. The step plane must be 50mm above the reference plane but this distance may be reduced by up to 5mm if wear occurs to the surface lying on the reference plane after contact with the ground.

The surface formed by all parts lying on the reference plane must extend from the rear edge of the complete front wheels to the front edge of the complete rear wheels, have a minimum width of 30cm (+/- 3mm), a maximum width of 50cm and must be symmetrical about the longitudinal centre line of the car.

All parts lying on the reference and step planes, in addition to the transition between the two planes, must produce uniform, solid, hard, continuous, rigid (no degree of freedom in relation to the body/chassis unit), impervious surfaces under all circumstances.

The peripheries of the surfaces formed by the parts lying on the reference and step planes may be curved upwards with maximum radius of 25 and 50mm respectively. The surface formed by the parts lying on the reference plane must be connected at its extremities vertically to the parts lying on the step plane and any radius, which forms the transition between the two planes, may have a maximum radius of 25mm.

To overcome any possible manufacturing problems, a tolerance of +/- 5mm is permissible across these surfaces.

All sprung parts of the car behind the front edge of the complete rear wheels visible from underneath and more than 15cm (+/- 1.5mm) from the longitudinal centre line must be at least 50mm above the reference plane.

3.13. Skid Block

3.13.1. Beneath the surface formed by all parts lying on the reference plane, a rectangular skid block must be fitted. This skid block may comprise more than one piece but must:

a. Extend longitudinally from a point lying 280 mm behind the front wheel centre line and a point lying 280 mm forward of the rear wheel centre line.
b. Be made of wood
c. Have a width of 300 m with a tolerance of +/- 2mm
d. Have a thickness of 5 mm with a tolerance +/- 1.5 mm if it is new.
e. Have nominally 5 mm thick when new
f. Have no holes or cut outs other than those necessary to fit the skid block to the car.
g. Have 3 precisely placed 80 mm diameter holes the positions of which are detailed in drawing 6.
h. Be fixed symmetrically about the centre line of the car in such way that no air may pass between it and the surface formed by the parts lying on the reference plane;

~~It is not permitted to support the fixations of the skid block to the monocoque with washers~~.

3.13.2. The front and rear edges of the new skid block must be bevelled over a distance of 50 mm and a depth of 3mm.

3.13.3. To establish the conformity of the skid block after the use its thickness will be uniquely measured around the 80 mm three holes. The minimum thickness must be observed in, at least, one point of the circumference of the three holes.
(Applicable to chassis F308 & F312)

Skid block wear out

The minimum thickness authorized for the lower wood skid block/s is stated in 2 mm.

3.14. Overhangs

With the exception of the structure required by art.15.5.1 and the FIA approved rear light and any lacking point attached to this structure, no part of the car shall be more than 50 cm behind the rear wheel centre line or more than 100 cm in front of the front wheel centre line.

No part of the bodywork more than 20 cm from the longitudinal car centre line may be more than 90 cm in front of the front wheel centre line.
(Applicable to F308 & F312)

Overhangs:

With the exception of the structure required by Art. 15.5.1. no part of the car shall be more than 50 cm behind the centre line of the rear wheels or more than 100 cm. in front of the centre line of the front wheels.

No part of the bodywork more than 20cm from the longitudinal centre line of the car may be more than 90cm in front of the front wheel centre line.

3.15. Aerodynamic influence

Any specific part of the car influencing its aerodynamic performance:

- Must comply with the rules relating to bodywork.
- Must be rigidly secured to the entirely sprung part of the car (rigidly secured means not having any degree of freedom)
- Must retain immobile in relation to the sprung part of the car.

Any device or construction that is designed to bridge the gap between the sprung part of the car and the ground is prohibited under all circumstances.

No part having an aerodynamic influence and no part of the bodywork (with the exception of the skid block in 3.13. in the case of chassis F308) above, may under any circumstances be located bellow the reference plane.

3.16. Wheelbase and track

Minimum wheelbase: 200cm (2000 mm.).
Minimum track: 120cm (1200 mm.)

3.17. Bodywork flexibility

3.17.1. Bodywork may deflect no more than 5mm vertically when a 50 kg load is applied vertically to it 700mm forward of the front wheel centre line and 575mm from the car centre line, this point being the centre of the below described adapter.
The load will be simultaneously applied on both sides of the front wing main plane in a downward direction using a rectangular adapter 300mm long and 150mm wide with the 300mm edges running parallel to the car centre line. The adapter must follow the shape of the front wing in the above defined area and the teams must supply the latter when such a test is deemed necessary.
During the test the car must sit on the skid block and the deflection is measured on both sides of the front wing main plane and at the car centre line, the car centre line figure being deducted from the LHS and RHS figures.

Bodywork cannot deflect more than 5 mm vertically when a 500 N load is applied vertically to it 700 mm forward of the front wheel centre line and 575 mm from the car centre line. The load will be applied in a downward direction using a (MACE, PISTON, ETC) 50 mm diameter ram and an adapter 300 mm long and 150 mm wide. Teams must supply these tools when such a test is deemed necessary.

3.17.2. In order to ensure that the requirements of Art. 3.15 are respected, the FIA reserves the right to introduce further load/deflection tests on any part of the bodywork which appears to be (or is suspected of) moving whilst the car is in motion.

3.18. Engine cooling ducts

The engine cooling duct surface must be at least 90,000mm² in total. This is measured to a projection onto a plane vertical to the reference plane and normal to the car centre line and must be maintained up to the radiator surface. Further any intersection taken normal to the car centre line and vertical to the reference plane must from a continuous line up to the radiator.
Devices for the sole purpose of connecting the floor to the chassis and to protect the radiators are allowed within the radiator duct and may pass through the bodywork. The devices and passages through the bodywork must have a circular cross section with a diameter no greater than 5mm and 7mm respectivlely.
(Applicable to F312)

3.19. Windscreen of the car for the driver

It is permitted to disassemble the windscreen of the car, but if it is assembled, this must be Dallara original, supplied by GT Sport, with no modification in shape dimensions or material.

ARTICLE 4: WEIGHT

4.1 Minimum weight

4.1.1. Weight of the car

The minimum weight of the car with the driver aboard wearing his complete racing apparel and safety equipment, must not be less than **575 kgs**. for any of the chassis models.
The minimum weight of the car in racing conditions is its weight at all moments qualifying and race.

4.1.2. The weight stated in art. 4.1.1. must be observed at all times during the event.

4.2. Ballast

Ballast can be used provided it is secured in such a way that tools are required for its removal. It must be possible to fix seals if deemed necessary by the Marshals.

For the European F3 Open 2012, the fixation, positioning and sealing of the ballast shall compulsory be carried out according to the following instructions:

It is authorised the use of ballast to complete the minimum weigh by means of one or more solid plates of a maximum surface of 20 x 25 cms, fixed by means of two studs, metric 8, and minimum quality ISO 8-8. or higher, easily accesible and placed on the cockpit floor (see the drawing below). These should be visible and sealed by the Marshals, the studs must be drilled in such a way a wire is able to pass through them.

BALLAST DELIMITED AREA

For the new single-seater cars a new location will be studied if this will be not feasible.

4.3. Adding during the race

The adding to the car during the race of any liquid or other material whatsoever or the replacement during the race of any part with another materially heavier is forbidden.

ARTICLE 5: ENGINE

5.1. Types of engine permitted

5.1.1 Alternative pistons engines:
The maximum number of cylinders is 4.
Two stroke engines are forbidden.

5.1.2 Pistons rotative engines:

Cars with pistons rotative engines covered by NSU-Wankel patents will be admitted on the basis of piston displacement equivalence. This equivalence is 1.5 the volume determined by the difference between the maximum and minimum capacity of the working chamber.

5.1.3 The use of magnesium is forbidden in any engines homologated after 01.01.94.

5.1.4 For the European F3 Open 2012 the following engines may be used:

- For chassis F300, F305/6, F308 and F312: it is solely authrised the engines designed, defined and sopplyed by the Organising Committee for these chassis.

For season 2012, solely the original Toyota engine with denomination 3S-GE-SXE10 and with the specific configuration defined and supplied by GT Sport will be authorised for chassis F300, F305/6, F308 and F312.

5.2. Maximum capacity

Engine capacity must not exceed 2000cm3

5.3. Supercharging

Supercharging is forbidden.

5.4. Engine modifications for the European F3 Open 2012

5.4.1. No change on the engine configuration is allowed.
Is is only allowed the intake system supplied by GT Sport , and its modification is not permitted. Such intake system must be equiped with a restrictor of 3 mm of lentgh and a maximum diameter of 31 mm, as defined in the Engine Users Manual. Should any other engine be permitted any matter regarding to it will be further communicated in appendix or updating of the present regulations.

5.4.2. No modification of the intake system or air restrictor supplied by GT Sport is allowed.

5.4.3. It is permitted to trim the engine bonnet, around the air-box area, to adapt it to its shape and to the injection system.

5.5. Vacuum tightness control of the intake system

5.5.1. Control of the intake system:

With at least one valve in each cylinder shut and the engine throttles open, the complete intake system must be capable of sustaining a vacuum of 0.2 bars.
Alternatively, if all the valves are shut, either by removing the camshaft(s) or following a repair carried out under the supervision of the Marshals, a vacuum of 0.267 bars must be sustained.

Any device used for checking the vacuum must have a maximum nominal output of 35 litres per minute and be capable of obtaining a vacuum of 0.734 bars to 0.867 bars for zero airflow.

5.5.2. With the engine constantly working at 2000 rpm, when putting a plug, as defined in the Engine Users Manual, on the air restrictor of the intake system, the engine shall be stopped in less than 2 seconds.

5.5.3. As a general rule, the Engine Users Manual, will be as valid as these Technical Regulations.

5.6. Exhaust system

Solely the eshaust system supplied and identified by GT Sport shall be valid for European F3 Open 2012.

5.6.1. No modification on the exhaust system supplied by GT Sport is allowed. The exhaust system dimensions must be at any moment those defined in the Engine Users Manual.

5.6.2. Only the following operations and modifications on the exhaust system are allowed:

- Substitution of the original fixing system of the silencer (with metalic clips) by the elastic fixing kit formed by springs and supplied by GT Sport.

- Repair and/or reconstruction of the silencer by adding material and welding The repaired silencer must be able to fit into the same original place, must be detachable and have the same main dimensions, both interior and exterior. it is also allowed the reposition and/or refilling of it by means of glass wool or isolating material of the same characteristics (like stainless wool)

- Sustitution of the exhaust pipe clamp between the silencer and the exhaust final pipe by another or others, providing that its solely purpose is to join both components and this union remains guaranteed.

5.6.3 It is allowed the change of the original silencer material by stainless steel wool.

5.6.4 Maximum noise level

- All the participants must respect the maximum noise levels (static and dynamic) during the complete meeting.
- All measures fitted in order to assure that the maximum noise limit is not exceeded must be permanent, and must not be annulled by the pressure of the exhaust gases.

- **Static noise**
  - When the car is not running, the maximum noise level for **all** the participants will be **114 dB (A)**.a ¾ del regimen maximo del motor
  - Measurements will be made at **0.5m** from the end of the exhaust pipe with the microphone at an angle of **45°** with respect to the exhaust outlet direction and at a height of **0.5 to 1.0m** above the ground.
  - If more than one exhaust outlet is present, the test will be repeated for each exhaust and the highest reading will be kept. In circumstances where the exhaust outlet is not immediately accessible, the test may be conducted at **2.0m** from the centre line of the vehicle at **90°** to the centre line of the vehicle, with the microphone **1.2m** above the ground.
- **Dynamic noise**
  - The noise generated by the car must not exceed **112 dB (A)** during the qualifying practice sessions and the race.
  - The measurement will be carried out **15 meters** from the edge of the track.

5.7. Telemetry. Data acquisition

The use of telemetry is forbidden.

A system of data acquisition is allowed providing that its fitting don't imply the original wirings modification, if the original wirings are not used. On this purpose it is permitted to install as many sensors as deemed necessary.

In addition, the fitting of any of the sensors, shall not mean any modification (drilled, filed, etc) of any of the structural parts of the car, except the front bracket at the level of the power steering box for the fitting of a steering sensor It is also allowed to dril the front panel of the bodywork, only to place a device for the lap data acquisition and/or radio anthen.

Any participant who fits any of these systems must communicate it in writing during the scrutineering for its supervision and corresponding authorisation of the Marshals. On the contrary the Marshals may order its dismantling to be able to obtain the Panel of Stewards' authorization to start.

5.8. Crankshaft and Clutch

5.8.1. The rotation axle of the crankshaft must be no less than 115 mm above the reference plane.

5.8.2. The clutch must have a minimum of two driver plates and the diameter of the clutch assembly must not be less than 165 mm.
The flywheel must be made of steel and must not form an integral part of the crankshaft

5.8.3. Only the clucth set supplied by GT Sport is allowed, which characteristics are defined in the Engine Users Manual.

5.8.4. It is permitted to protect the clutch by means of an anti-caloric strip.

5.9. Oil and water pumps

Electrically driven engine oil and water pumps are forbidden

Only oil and water pumps supplied by GT Sport are authorised. Their characteristics are defined in the Engine Users Manual.

5.10. Inlet trumpets

Any modification of the geometry (length or section) both of the intake elements or intake ducts supplied by GT Sport, which characteristics are defined in the Engine Users Manual, are forbidden, with the exception of the throttle valve.

5.11. Engine Control Unit

5..11.1. Only the engine control unit supplied by GT Sport is authorised in the European F3 Open 2012.

All the control units will be sealed according to the Engine Users Manual.

The models of control units authorised are:

- For chassis F312 Magneti Marelli SRTE
- For chassis F308 Magneti Marelli SRTE
- For chassis F305/6 Magneti Marelli SRTE
- For chassis F300 Magneti Marelli MF4L

5.11.2. The firmware or control program of the control unit is unique for all the cars and specific for the European F3 Open 2012. Such firmware corresponds to a protected license. In order to verify and control the equality of the control units, the Marshals of the Series can have UNIDIRECTIONAL connection with the control units of the participants. This is, the Marshals will be able to verify, at any moment, the program of the control units but in no case will be able to modify any parameter. The Marshals will have access to the information of the single-seaters cars data acquisition in order to evaluate the car's performance parameters, meeting for this action with the approval of the panel of the Stewards. Anyhow the Organising Committee and the Officials will watch over the confidentiality of above data and the correct use of it.

5.11.3. To guarantee the equality between the participants, a draw lots procedure is established for the control units as defined in art. 27.3 of the Sporting Regulations.

5.11.4. Control units shall register the maximum revolutions as well as the time such engine has been working over 3.000 revs. in order to control the maximum engine working hours limit according to art. 28 of the Sporting Regulations.

5.12. Joker engine

Any of the following assumptions will be understood by "Joker engine":

- Disassembling of the vehicle's engine and assembly of another engine unit from GT sport Spare Parts Truck
- Disassembling of car's engine and assembly of a new engine from another participant, vehicle with the mileage such an engine has.

In any of the two previous assumptions the participants lose the rights for the joker engine. (See art. 27.2 of the Sporting Regulations).

5.13. Spare Engines

Spare engines are not authorised.

5.14. Overrevs

Should an engine works over 7750 rpm it is considered an engine "overrev" being the authorised maximum regimen of the inyection 7500 rpm. Overrevs will be duly communicated to participants

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5.15. Additional Replacements and engine checkings

Once the annual revision, to which all participants has right, has taken place in any of the assumptions previously considered, it will only be authorised a new engine checking in case of force majeoure (engine totally breakdown or serious mechanical risk). (see art. 27.2 of the sporting regulations).

5.16. Engine checkings service

Engine checkings will be carried out by GT Sport Organización which is the unique organism authorised to perform them.

5.17. Engine sealing

The engine kit will be supplied by GT Sport duly sealed, according to the configuration in the Engine User's Manual.

5.17.1 Breaking and/or manipulation of any of the sealings fitted in the engine will lead to the penalties stated in the series sporting regulations (See appendix 1 of Sporting Regulations)

5.18. Failures in engine operation

GT Sport will be the only authorised entity to determine the seriousness and causes of the possible malfunctioning of an engine. In this case, if GT Sport deems it opportune may force the sustitution or reparation of the components considered convenient and they will judge whether these operations corresponds or not to the option of annual checking.

5.19. Correlation among components

The Technical Commission of the Spanish Federation together with the Organising Committee will, at any moment, follow up the correspondence, in any vehicle, between engine, control unit and chassis, both if these are the original ones or if they are the result of sustitutions. In this way it is not allowed the exchange of these components among different chassis, not even among components of the same team.

5.20. Control units control

The Technical Commission of the Spanish Federation together with the Organising Committee of the Series will be able to control the memory of the control units at any moment during the event.

5.21. Normal Oil Level

Is is defined as engine normal level the one defined in the Engine User's Manual.

ARTICLE 6: PIPING AND FUEL TANKS

6.1. Fuel tanks

6.1.1 The fuel tank must be a single rubber bladder conforming to or exceeding the specifications of FIA/FT3 or FT3 1999.

6.1.2 All the fuel stored on board the car must be situated between the front face of the engine and the driver's back when viewed in lateral projection. Furthermore, no fuel can be stored more than 30cm forward of the highest point at which the driver's back makes contact with his seat. However, a maximum of 2 litres of fuel may be kept outside the survival cell, but only the quantity, which is necessary for the normal running of the engine.

6.1.3 Fuel must not be stored more than 40cm from the longitudinal axis of the car.

6.1.4 The fuel bladder must be fitted with the fuel resistant polyurethane foam baffling with which it is supplied.

6.1.5 All rubber bladders must be made by manufacturers recognised by the FIA. In order to obtain the agreement of the FIA, the manufacturer must prove the compliance of his product with the specifications approved by the FIA. These manufacturers must undertake to deliver to their customers exclusively tanks complying with the approved standards.

A list of approved manufacturers is available from the FIA.

6.1.6 All rubber bladders shall be printed with the name of the manufacturer, the specifications to which the tank has been manufactured and the date of manufacture.

6.1.7 No rubber bladders shall be used more than 5 years after the date of manufacture, unless inspected and re-certified by the manufacturer for a period of up to another 2 years.

6.2. Fittings and piping

6.2.1. All apertures in the fuel tank must be closed by hatches or fittings which are secured to metallic or composite bolt rings bonded to the inside of the bladder.

The bolt holes edges must be no less than 5mm from the edge of the bolt ring, hatch or fitting.

All hatches and fittings must be sealed with the gaskets or "O" rings supplied with the tank.

6.2.2. All fuel lines between the fuel tank and the engine must have a self-sealing breakaway valve. This valve must separate at less than 50% of the load required to break the fuel line fitting or to pull it out of the fuel tank.

6.2.3. No lines containing fuel, cooling water or lubricating oil may pass through the cockpit.

6.2.4. All lines must be fitted in such a way that any leakage cannot result in the accumulation of fluid in the cockpit.

6.2.5. No hydraulic fluid lines may have removable connectors inside the cockpit.

6.2.6. When flexible, all lines must have threaded connectors and an outer braid which is resistant to abrasion and flame.

6.2.7. All fuel and lubricating oil lines must have a minimum burst pressure of 41bar at the maximum operating temperature of 135°C.

6.2.8. All hydraulic fluid lines which are not subjected to abrupt changes in pressure, with the exception of lines under gravity head, must have a minimum burst pressure of 408bar at the maximum operating temperature of 204°C when used with steel connectors and 135°C when used with aluminium connectors.

6.2.9. All hydraulic fluid lines subjected to abrupt changes in pressure must have a minimum burst pressure of 816 bars at the maximum operating temperature of 204°C.

6.3. Crushable structure

The chassis must include a crushable structure surrounding the fuel tank with the exception of the access hatches, this structure being an integral part of the car main structure and of the survival cell, and conforming to the following specifications:

6.3.1. The crushable structure must be a honeycomb sandwich construction based on a fire resistant core of a minimum crushing strength of 18N/cm² (25lb/in²). It shall be permitted to pass water pipes through this core, but not fuel, lubricating oil or electrical lines.

The sandwich construction must include two skins of 1.5mm thickness having a tensile strength of minimum 225N/mm² (14 tons/in²).

6.3.2. The minimum thickness of the sandwich construction must be 1cm (10mm.).

6.4. Tank fillers

6.4.1. Tank fillers must not protrude beyond the bodywork. Any breather pipe connecting the fuel tank to the atmosphere must be designed to avoid liquid leakage when the car is running and its outlet must not be less than 25cm from the cockpit opening. All tank fillers must be designed to ensure an efficient locking action, which reduces the risk of accidental opening following a crash impact or incomplete locking after refuelling.

6.4.2. All cars must be fitted with a self-sealing connector, which can be used by the Marshals to obtain fuel from the tank.
This connector must be the type approved by the FIA.

6.5. Refuelling

6.5.1. Refuelling during the race and qualifying is forbidden.

6.5.2. Refuelling the car on the grid by any other means than by gravity from a maximum head of 2 metres above the ground is forbidden.(if authorised by the sporting regulations)

6.5.3. Any storage of fuel on board the car at a temperature of more than 10 degrees centigrade below the ambient temperature is forbidden.

6.5.4. The use of any specific device, whether on board or not, to decrease the temperature of the fuel below the ambient temperature is forbidden.

ARTICLE 7: OIL SYSTEM

7.1 Location of oil tanks:

All oil storage tanks must be situated between the front wheel axis and the rearmost gearbox casing longitudinally, and if situated outside the main structure of the car they must be surrounded by a 10mm thick crushable structure.

No part of the oil reservoir for engine lubrication may be situated more than 20 cm laterally from the car centre line and must be located between the rear face of the engine and the rear wheel centre line longitudinally. *
* This paragraph is applicable only for engines homologated after 1st January 2012

7.2 Longitudinal location of lubrication system:

No part of the car containing engine oil may be situated behind the complete rear wheels.

7.3 Catch tank:

When a car's lubrication system includes a breather to the atmosphere, this must lead into a catch tank of at least 2 litres capacity.

7.4 Transversal location of lubrication system:

No part of the car containing oil may be more than 55cm from the longitudinal centre line of the car.

7.5 Oil filling:

No oil filling is allowed during a race.

7.6 Location of the lubrication system in the the European F3 Open 2012 vehicle.

The one stated in the Vehicle User's Manual.

ARTICLE 8: ELECTRICAL SYSTEM

8.1 Starter

A starter must be fitted with electrical or other source of energy carried aboard the car, and able to be controlled by the driver when seated normally.
The starter must be capable of starting the engine at all times.
In order to optimize the driving of the starter, the following components may be fitted:

- Complementary mass wiring (from one of the two screws in the fitting of the starter to the engine block)
- Relay for the starter excitation (in the sorroundings of this component).

8.2 Starting of the engine

A supplementary device temporarily connected to the car may be used to start the engine both on the grid and in the pits.

8.3 Car battery

The car battery must be installed within the survival cell on the floor behind the driver's seat.
The minimum weight of the car battery is 9 kg.
(Applicable to F312)

It is permitted:

- To protect the battery from vibrations, covering its battery tray with an absorbent material.
- To add a system such that, using the original battery tray supplied by GT Sport, let to mount a battery of smaller dimensions.
- Incorporate an external connector for battery failures on the right hand side of the car.

8.4. Accident data recorders

The recorder must be fitted and operated

- By being rigidly attached to the survival cell using the fixation holes provided:
- In accordance with the instructions of the ADR manufacturer.
- Symmetrically about the car centre line and with its top facing upwards.
- With each of its 12 edges parallel to an axis of the car.
- Less than 50 mm above the reference plane.

- In a position within the cockpit which is readily accessible at all times without the need to remove the skid block or floor.
- In a position which is normally accessible at the start and finish of an event.
- In order that the entire unit lies between 40 % and 60% of the wheelbase of the car
- With its main connector facing forward
- In order that its remote status light is visible when the driver is in the cockpit
- In order that the download connector is easily accessible without the need to remove bodywork.

NOTE: The application of the art. 8.3. is at the discretion of the ASN
(Applicable to chassis F308 & F312)

8.5. Electrical installation.

It is permitted to protect the electrical installation of the engine against the abrasion and scratches because contact with edges and chassis holes.

ARTICLE 9: TRANSMISSION TO THE WHEELS

9.1 Four drive wheel

Four drive wheel cars are forbidden.

9.2 Type of gearbox

9.2.1. Vehicles must have a maximum of SIX (6) forward sequential gears in the chassis F305/6, F308 and F312 and FIVE (5) forward sequential gears in the chassis F300.

~~9.2.2. The maximum number of numerical change gear ratio pairs a competitor has available to him during a Championship season is 30. All such gear ratio pairs must be declared to the technical delegate at or before the first Event of the Championship~~.

9.2.3. No forward gear ratio pair must be:
- less than 12.75mm wide when measured across the gear tooth at the root diameter or any point 1mm above or below the root diameter. Above this area each side of the gear teeth may be chamfered by a maximum of 10°. In addition, a chamfer or radius not exceeding 2.0mm may be applied to the sides and the tip of the teeth
- less than 78.9 mm between centres;
- less than 670 g (excluding any integral shaft or collar).

If an integral shaft or collar is to be excluded the mass of this may be shown by calculation assuming the gear to be 12.75mm wide and the shaft geometry to be the same as that where slide-on gears are used.

9.2.4. Gear ratios must be made from steel.

9.2.5. The rotational axis of the layshaft must be in line with the crankshaft's rotational axis. All other rotational axes must also be parallel to the reference plane.

9.2.6. From the clutch to the rear wheels there are only two pairs of reduction gears allowed per ratio (except for the reverse gear).

9.2.7. Transversal gearboxes or gearboxes placed forward of the rear wheel axis are forbidden.

~~It is not permitted to change the gear box triggering rod in case the cut off is not used. In consequence, in any case, the system must remain original~~.

9.2.8. Semi automatic and automatic gearboxes and differentials with electronic, pneumatic or hydraulic slip control are forbidden.

9.2.9. A single automatic ignition cut which is completely controlled by the homologated single ECU is permitted during one manual gear change. A different cut time for each gear may be homologated once during the ECU homologation period by the engine manufacturer / tuner.

9.2.10. A device which prohibits driver downshift attempts, if the calculated engine rpm for the destination gear would be higher than the maximum engine rpm allowed by the engine manufacturer, is permitted and must be controlled by the homologated single ECU.

9.2.11. Viscous differentials are not considered as hydraulic slip controllers, providing that, once the car is in motion, the control of this dispositive is not possible.

9.2.12. The weight of the dry differential assembly without crown wheel must not be less than 3800 gr.

9.2.13. The weight of the crown wheel including bolts and lockwire must not be less than 1850 gr.

9.2.14. Forced lubrication is forbidden

9.3 Reverse gear

All cars must have a reverse gear, which, at any time during the event, can be selected while the engine is running and used by the driver when seated normally.

9.4 Traction control

The use of traction control is forbidden.

9.5 Gearbox model

Only the models of gear boxes defined in the User's Manual are authorised for the European F3 Open 2012, respectively for F300, F305/6, F308 and F312 chassis.

9.6 Differential

F300, F305/6, F308 and F312 shall use only the respective models of differentials stated in the Users Manual.

9.7 Gearbox Ratios

Solely the gearbox ratios defined in the users manual are authorised for F300, F305/6, F308 and F312, both for the fist ratio as for the rest of ratios.

9.8 Final drive ratio

For the European F3 Openp 2012, only final drive ratios defined in the Chassis User's Manuals, according to the chassis models, are authorised.

9.9 Gear Lever Knob

In case of necessity, Teams may request gear level knob change. The new knob must be authorised by the Marshals.

ARTICLE 10: SUSPENSION AND STEERING

10.1 Active suspension

Active suspension is forbidden.

10.2 Chromium plating

Chromium plating of any steel suspension components is forbidden.

10.3. Suspension members

10.3.1 All suspension members must be made from a homogeneous metallic material.

10.3.2 In order to prevent the intrusion of suspension parts into the survival cell in case of a side impact provision must be made to accommodate flexible cables, each with a cross sectional area greater than 110 mm2, the purpose of which is to connect each wheel/upright assembly to the main structure of the car. The cables and their attachments must also be designed in order to help prevent a wheel making contact with the driver's head during an accident.

Each cable must have its own separately attachment which:

- Is able to withstand a tensile force of 70 kN
- Is able to accommodate a cable end fitting with a minimum inside diameter of 15mm.

Each wheel may be fitted with one or two cables, dependent upon their performance when tested under FIA Test Procedure 03/05. If one cable is fitted it must exceed the requirement of 3.1.1 of test procedure 03/05 and if two are fitted each must exceed the requirement of 3.1.2

Each cable must exceed 450 mm in lengh and must utilise end fittings which result in a tether bend radius greater than 7.5 mm.
(Part. 10.3.2. applicable to F308 & F312)

In order to prevent intrusion of suspension parts into the survival cell during a side impact, each member of every front suspension component with two inboard mountings must be joined by a link as close to the survival cell as practical. This link must be circular with a minimum diameter of 10mm, and any slip joint must be bolted or pinned and located in the centre of the span.
(Part 10.3.2. applicable to F300)

10.3.3. The overall cross-sections of each member of every suspension component (with any non-structural shroud for wheel tethers included) must have an aspect ratio no greater than 3.5:1 and be symmetrical about its major axis. All suspension components may however have sections with an aspect ratio greater than 3.5:1, and be non-symmetrical, provided these are adjacent to their inner and outer attachments and form no more than 25% of the total distance between the attachments of the relevant member.

All measurements will be made perpendicular to a line drawn between the inner and outer attachments of the relevant member
(Applicable to F312)

In order to prevent a wheel becoming separated in the event of all suspension members connecting it to the car failing, two cables, each with separated attachments, must be fitted to connect each wheel/upright assembly to the main structure of the car. The cables and their attachments must be designed in order to help prevent a wheel making contact with the driver's head during an accident.
The length of each cable should be no longer than that required to allow normal suspension movement.
Each complete cable restraint system, including their attachments, must have a minimum tensile strength of 50 kN and each cable must be flexible with a minimum diameter of 8 mm.
(Art. 10.3.3. only applicable to chassis F305/6)

The cross section of each member of every suspension component must have an aspect ratio no greater than 3.5:1 and be symmetrical to its major axis. All suspension components may however have sections with an aspect ratio greater than 3-5:1, and be non-symmetrical, provided these are adjacent to their inner and outer attachments and from no more than 25% of the total distance between the attachments of the relevant member.

All measurements will be made perpendicular to a line drawn between the inner and outer attachments of the relevant member.
(Art. 10.3.4. only applicable to chassis F305/6)

10.3.4. No major axis of a cross section of a suspension member may subtend an angle greater than 5° to the reference plane when measured parallel to the car centre line.
(Applicable to F312)

No major axis of a cross section of a suspension member may subtend an angle greater than 5º to the reference plane when measured parallel to the centre line of the car.
(Art. 10.3.5. only applicable to chassis F305/6)

10.4. Sprung suspension

Cars must be fitted with sprung suspension.

In order to avoid mass dampers, the suspension system must be so arranged that its response results only from changes in load applied to the wheels

The springing medium must not consist solely of bolts located through flexible bushes or mountings.

There must be movement of the wheels to give suspension travel in excess of any flexibility in the attachments.

10.4.1. It is only authorised the use of the shock absorvers (make and model) defined in the F300, F305/6, F308 and F312 Chassis respective User's Manuals.

10.4.2. The only elastic elements which may be used for the vehicle's suspension are the helical springs in such a way that each of the three (F300, F305/6) or four (F308) shock absorvers fitted in the vehicle must be equipped with an spring of this kind. It is also authorised the supplementary fitting of rubber bumpers (bump-stop or **silastos)** in the suspension systems. This supplementary fitting shall not be more complicated than the one formed by simple washers.

10.4.3. Autorizated: Change the fixation in "L" shape of the front droop stop by one in L or U shape (in this last case the ends of the U must be of the same size of the original) providing its function be solely to give more stockiness to the system. Such system must be accepted by the technical commision of the Spanish Federation as well as by the Organising Committee.

10.4.4. It is not permitted the fitting of axial bearings "needle type" between the supporting bearing and the shock absorver spring.

10.5. Steering

10.5.1. The steering must consist of a mechanical link between the driver and the wheels.

10.5.2. Four wheel steering is forbidden.

10.5.3. The steering wheel, steering column and steering rack assembly must be subjected to an impact test.

For the purposes of this test, these parts must be fitted to a representative test structure; any other parts, which could materially affect the outcome of the test, must also be fitted. The test structure must be solidly fixed to the

ground and a solid object, having a mass of 8kg and travelling at a speed of 7m/s, will be projected into it.

The object used for this test must be hemispherical with a diameter of 165mm.
For the test, the centre of the hemisphere must strike the structure at the centre of the steering wheel along the same axis as the main part of the steering column.

During the test the striking object may not pivot in any axis and the test structure must be supported in a way that does not increase the impact resistance of the parts being tested.

The resistance of the test structure must be such that during the impact the peak deceleration of the object does not exceed 80g for more than 3ms. The steering wheel quick release mechanism must still function normally.

10.5.4. Neither part of the steering wheel or column, nor any part fitted to them, may be closer to the driver than a plane formed by the entire rear edge of the steering wheel circumference. (paragraph of application in chassis F305 and on)

All parts fixed to the steering wheel must be fitted in such a way as to minimise the risk of injury in the event of a driver's head making contact with any part of the wheel assembly.

ARTICLE 11: BRAKES

11.1 Separate circuits

All cars must have a brake system which has at least two separate circuits operated by the same pedal. This system must be designed so that if leakage or failure occurs in one circuit, the pedal shall still operate the brakes on at least two wheels.

11.2 Brake discs

11.2.1 Brake discs must be made from ferrous material.

11.2.2 Brake discs must not be drilled, and must have a maximum of 4 grooves per side. Additionally, all solid discs must have a minimum thickness of 9.5mm and ventilated discs 15mm when new.

11.2.3 The only brake discs to use (make and model) are those described in the F300, F305/6, F308 and F312 Vehicle's respective Users Manuals.

The weight of a used brake disc must not be less than 1900 gr. The weight of a complete but used brake disc assembly must not be less than 2300 gr

11.3 Brake callipers

11.3.1 All brake callipers must be made from aluminium materials with a modulus of elasticity no greater than 80 Gpa.

11.3.2 There must be no more than four brake pistons on each wheel.

11.3.3 The weight of a brake calliper must not be less than 1200 gr.

11.3.4 Only brake callipers stated in the F300, F305/6, F308 and F312 Chassis respectiveUser's Manuals shall be used.

11.3.5 Only brake pads stated in the F300, F305/6, F308 and F312 Chassis respective User's Manuals shall be used..

11.3.6 The diameter of the pistons of the brake pumps is free, but not the make and model, providing that their sustitution don't involve any modification of the system driving, joint or fitting of the braking elements.

11.4 Air ducts

Air ducts for the purpose of cooling the front brakes shall not protrude beyond:

- A plane parallel to the ground situated at a distance of 140mm above the horizontal centre line of the wheel.
- A plane parallel to the ground situated at a distance of 140mm below the horizontal centre line of the wheel.
- A vertical plane parallel to the inner face of the front rim and displaced from it by 120mm toward the centre line of the car.
- A vertical plane which goes through the inner face of the rim in relation to longitudinal centre line of the car.
- ~~The periphery of the tyre forwards or the wheel rim backwards, when viewed from the side of the car~~.

Furthermore, when viewed from the side the ducts must not protrude forwards beyond a radius of 280mm from the centre of the wheel or backwards beyond a radius of 180mm from the centre of the wheel.
All measurements will be made with the wheel held in a vertical position.

11.5. Liquid cooling

Liquid cooling of any part of the braking system is forbidden.

11.6. Brake pressure modulation

Anti-lock brakes and power braking are forbidden.

ARTICLE 12: WHEELS AND TYRES

12.1 Location

Complete wheels must be external to the bodywork in plan view, with the rear aerodynamic device removed.

12.2 Wheel material

All wheels must be made from homogeneous metallic materials.

12.3 Dimensions and weights

12.3.1. Maximum complete wheel width 295 mm
Wheel bead ~~Compulsory rim~~ diameter 330 mm (+-2.5.mm)

12.3.2. These measurements will be taken horizontally at axle height.
(Applicable to chassis F308 & F312)

12.3.3. The weight of a front rim must not be less than 3700 gr.

The weight of a rear rim must not be less than 4200 gr.
(Applicable to F312)

~~**Dimensions**~~
~~12.3.1 Maximum complete wheel width: 11.5 inches.~~

~~Compulsory rim diameter: 13.0 inches.~~

~~12.3.2 These measurements will be taken horizontally at axle height~~.

12.4 Maximum number of wheels

The number of wheels is fixed at four.

12.5 Wheel attachment

A safety spring must be in place on the wheel nut throughout the event and must be replaced after each wheel change. These springs must be painted red or dayglo orange.

Alternatively, another method of retaining the wheels may be used, providing it has been approved by the FIA.

12.6 Pressure control valves

Pressure control valves on the wheels are forbidden.

12.7 Rim's model

Only rims supplied and identified by GT Sport shall be used in the European F3 Open 2012. Their characteristics as follows

F312 Front Rim:

- **OZ** – 9 x 13 ET 1.65 (blocade surface)

F312 Rear Rim:

- **OZ** – 10.5 x 13 ET 10.1 (blocade surface)

F306 & F308 Front rim:

- **OZ** – 9 x 13 ET 1.65 (blocade surface)
- **Taneisya** – 9 x 13
- **ATS** – 9 x 13 ET1

F306 & 308 Rear Rim:

- **OZ** – 10.5 x 13 ET 10.1 (blocade surface)
- **Taneisya** – 10.5 x 13
- **ATS** – 10.5 x 13 ET 10

F300 Front rim:

- **OZ** – 9 x 13 ET 0
- **Speedlin**e – 9 x 13

F300 Rear Rim

- **OZ** – 10.5 x 13 ET 10.1
- **Speedlane** – 10.5 x 13

12.8 Tyres

Tyres make and model shall be unique and exclusively those designed by GT Sport Organising Committee, described (make, model, dimensions and compunds) in the vehicle's Users Manual.

ARTICLE 13: COCKPIT

13.1 Cockpit opening

Applicable to F312: In order to ensure that the opening giving access to the cockpit is of adequate size, the template shown in Drawing 1 will be inserted into the survival cell and bodywork.
During this test the steering wheel, steering column, seat and all padding may be removed and:
- the template must be held horizontal and lowered vertically from above the car until its lower edge is 525mm above the reference plane;
- referring to Drawing 1, the rear edge of the template must be no less than 1500mm behind the front wheel centre line.
Any measurements made from the cockpit entry template (when referred to in Articles 13.1, 14.3.3, 15.2.2, 15.3.5, 15.3.7, 15.3.10 and 15.4.1), must also be made whilst the template is held in this position.

Applicable to F308: The opening giving access to the cockpit must allow the horizontal template, shown in Drawing in 274-5 of appendix J, to be inserted vertically, from above the car into the survival cell and bodywork, with the steering wheel, steering column, seat and all padding removed.

Applicable to F305/6: The rear tip of the template must not be less than 1500 mm from the front wheels centre line and it must be possible to lower the template 25 mm below the lowest point of the cockpit opening.

Applicable to F300: The front tip of the template must be no less than 625mm from the front wheel centre line and it must be possible to lower the template 25mm below the lowest point of the cockpit opening.

Furthermore, the forward extremity of the cockpit opening, even if structural and part of the survival cell, must be at least 50mm in front of the steering wheel.
The driver must be able to enter and get out of the cockpit without it being necessary to open a door or remove any part of the car other than the steering wheel.
When seated normally, the driver must be facing forwards and the rearmost part of his crash helmet may be no more than 125mm forward of the rear edge of the cockpit entry template.
From his normal seating position, with all seat belts fastened and whilst wearing his usual driving equipment, the driver must be able to remove the steering wheel and get out of the car within 5 seconds and then replace the steering wheel in a total of 10 seconds.
For this test, the position of the steered wheels will be determined by the scrutineer and after the steering wheel has been replaced steering control must be maintained **(Applicable to F312)**

Furthermore, the forward extremity of the cockpit opening, even if structural apart of the survival cell, must be at least 5cm in front of the steering wheel.

The driver must be able to enter and get out of the cockpit without being necessary to open a door or remove any part of the car other than the steering wheel or cockpit padding. Sitting at his steering wheel, the driver must be facing forward.

The cockpit must be so conceived that the maximum time necessary for the driver to get out from his normal driving position does not exceed 5 seconds with all driving equipment being worn and starting with the safety belts fastened.

13.2 Steering wheel

13.2.1 The steering wheel must be fitted with a quick release mechanism. Its method of releasing must be by pulling a concentric flange installed on the steering column behind the wheel.

13.2.2 The steering wheel rim must be continuously closed but the shape is free.

13.3. Internal cross section

The internal cross section of the cockpit from the sole of the driver's feet to behind his seat shall at no point be less than 700cm² (70000 mm.).

A free vertical cross section, which allows the template shown in Drawing in 274-6 of appendix J to be passed vertically through the cockpit, must be maintained over its entire length.

The only elements which can encroach on these two areas are the steering wheel and padding.

The driver, seated normally with his seat belts fastened and with the steering wheel removed must be able to raise both legs together so that his knees are past the plane of the steering wheel in the rearward direction. This action must not be obstructed by any part of the car.

ARTICLE 14: SAFETY EQUIPMENT

14.1. Fire extinguishers

14.1.1 All cars must be fitted with a fire extinguishing system, FIA homologated, which must discharge into the cockpit and into the engine compartment.

14.1.2 Extinguishant agents authorised (approved by the FIA):
BCF (CF2 C1 Br)
NAF S3
NAF P

14.1.3. Any AFFF that has been specifically approved by the FIA (see Technical list nº6)

14.1.4. The quantity of product may vary according to the extinguishant type. There exists a FIA available list.

Minimum capacity of extinguishants:

- For BCF, NAF S3, NAF P:
  * Cockpit: 1,65 liters
  * Engine: 3,30 liters

For AFFF,the capacity is variable according to the tupe used. (see technical List nº 6)

Minimum Capacity of extinguishant agent:

BCF:	Cockpit:	2,5 kg
	Engine:	5,0 kg
NAF S3:	Cockpit:	2,0 kg
	Engine:	4,0 kg
NAF P:	Cockpit:	2,0 kg
	Engine:	4,0 kg
Dust:	Cockpit:	1,2 kg
	Engine:	2,4 kg
AFFF:	The amounts vary according to the type used (see Technical list nº6)	

14.1.5. When operated, the fire extinguishing system must discharge 95% of its contents at a constant pressure in no less than 10 seconds and no more than 30 seconds.
If more than one container with exthinguishant is fitted, they must be released simultaneously.

(Art. 14.1.5. not applicable to chassis F300)

14.1.6. Time of unloading:

Engine: 30 seconds/80 seconds maximum
Cockpit: 10 seconds /40 seconds maximum
Both extinguishers must be driven simultaneously.
(Art. 14.1.6. only applicable to chassis F300)

14.1.7. All extinguishers must be pressurized, according to their content, in the following way:

BCF:	7.0 Bar
NAF S3:	7.0 Bar
NAF P:	7.0 Bar
Dust:	13.5 Bar
AFFF:	Pressures vary according to the type used (see Technical list nº 6)

In addition, in the case of an AFFF, the extinguishers must be equipped with a system allowing the above mentioned verification.

14.1.8. The following information must be visible on each container with extinguisher:

a) Capacity
b) Type of extinguisher;
c) Weight or volume of the extinguisher;
d) Date in which the container must be checked which must not be higher than two years after its filling or after its last verification

14.1.9. All parts of the extinguishing system must be situated within the survival cell and all extinguishing equipment must withstand fire.
(Art. 14.1.9. not applicable to chassis F300)

14.1.10. Any triggering system having its own source of energy is permitted; provided it is possible to operate all extinguishers should the main electrical circuits of the car fail.

The driver must be able to trigger the extinguishing system manually when seated normally with his safety belts fastened and the steering wheel in place.

Furthermore, a means of triggering from the outside must be combined with the circuit breaker switch. It must be marked with a letter "E" in red inside a white circle of at least 10cm diameter with a red edge.

14.1.11. The system must work in any position, even when the car is inverted.

14.1.12 .Extinguisher nozzles must be suitable for the extinguisher and be installed in such a way that they are not directly pointed at the driver's face.

14.2. Master switch

14.2.1 The driver, when seated normally with the safety belt fastened and steering wheel in place, must be able to cut off all electrical circuits to the ignition, all fuel pumps and the rear light by means of a spark proof circuit breaker switch.

This switch must be located on the dashboard and must be clearly marked by a symbol showing a red spark in a white edged blue triangle.

14.2.2. There must also be an exterior switch, with a horizontal handle, which is capable of being operated from a distance by a hook. This switch must be located at the base of the rollover structure, at the right hand side. It must be clearly marked by a symbol showing a red spark in a white edged blue triangle of at least 50 mm.

14.3. Rear view mirrors

14.3.1. All cars must have at least two mirrors mounted so that the driver has visibility to the rear and both sides of the car.

14.3.2. The reflective surface of each mirror must be at least 150 mm wide, this being maintained over a height of at least 50 mm. Additionally each corner may have a radius no greater than 10 mm.
(Art. 14.3.2. not applicable to chassis F300)

14.3.3. No part of the mirror reflective surface may be less than 250mm from the car centre line, less than 550mm forward or more than 750mm forward of the rear edge of the cockpit entry template.
No part of the rear view mirrors, the mirror housings or the mirror mountings may be situated more than 500mm from the car centre line.
(Art. 14.3.3. not applicable to chassis F300)

14.3.4. The scrutineers must be satisfied by a practical demonstration that the driver, when seated normally, can clearly define following vehicles.
For this purpose, the driver shall be required to identify any letter or number, 150mm high and 100mm wide, placed anywhere on boards behind the car, the positions of which are detailed below :

- Height: From 400mm to 1000mm from the ground.
- Width: 2000mm either side of the centre line of the car.
- Position: 10m behind the rear axle line of the car

14.4. Safety belts

The wearing of two shoulder straps, one abdominal strap and two straps between the legs is mandatory. These straps must be securely fixed to the car and must comply with FIA standard FIA 8853/98.

14.5 Rear light

All cars must have a red light in working order throughout the event, which:

- It is a model approved by the FIA for F3 cars.
- Faces rearwards at 90° to the car centre line.
- It is clearly visible from the rear.
- It is not mounted more than 10cm (100mm.) from the car centre line.
- It is at least 280 mm above the reference plane.
- It is no less than 450 mm behind the rear wheel centre line, measured to the face of the lens and parallel to the reference plane.
- Can be switched on by the driver when seated normally in the car.

The three measurements being taken to the centre of area of the lens

.

14.6. Headrest and head protection

14.6.1. All cars must be equipped with three areas of padding for the driver's head which:

- Are so arranged that they can be removed from the car as one part.
- Are located by two horizontal pegs behind the driver's head and two fixings, which are clearly indicated and easily removable without tools, at the front corners
- Are made of a material which is approved by the FIA.
- Are covered in all areas where the driver's head is likely to make contact, with two plies of Aramid fibre/epoxi resin composite pre-preg material in plain weave 60 qsm fabric with a cured resin content of 50% (+/-5%) by weight
- Are positioned so as to be the first point of contact for the driver's helmet in the event on an impact prejecting his head forwards them during an accident.

14.6.2. The first area of padding for the driver's head must be positioned behind him and be between 75 mm and 90 mm thick over an area of at least 40.000 m2.

14.6.3. The two further areas of padding for the driver's head must be installed each side of him. The upper surfaces of these areas of padding must be at least as high as the survival cell over their entire length.
Each area of padding must be between 75 mm and 90 mm thick over an area of at least 40000 mm2, at least 25000 mm2 of which must lie directly alongside the driver's helmet. The thickness will be measured perpendicular to the car centre line.

14.6.4. All of the padding described above must be so installed that if movement of the driver's head in any expected trajectory during an accident were to compress the foam fully at any point, his helmet could not make contact with any structural part of the car.

14.6.5. ~~It is forbidden to cover the head-rest mechanisms of materials other than the expressed in this article. It is only authorised to paint them~~.

Furthermore, for the benefit of rescue crews the method of removal must also be clearly indicated

14.6. Headrest for F300 chassis

All cars must be equipped with headrests made from a material specified by the FIA.
The headrests must consist of at least 75mm thick over an area of 400cm², one of them behind the driver's helmet and the others at each side of him. The headrests must be so installed that if movement of the driver's head were to fully compress the foam at any point over their area, his helmet would not make contact with any structural part of the car.
They must be so positioned as to be the first point of contact for the driver's helmet in the event of an impact projecting his head backwards or sideways when he is seated normally.

14.7. Seat Fixing and removal

14.7.1. In order to remove an injured driver from his seat in case of an accident, all cars must be fitted with a seat which, if it is secured, must be done so with no more than two bolts. If bolts are used, they must:

- Be clearly indicated and easily accessible to rescue crews.
- Be fitted vertically
- Be removable with the same tool for all teams and which is available to all rescue crews.

14.7.2. The seat must be equipped with receptacles which permit the fitting of belts to secure the driver and one which will permit the fitting of a neck support.

14.7.3. The seat must be removable without the need to cut or remove any of the seat belts.

14.7.4. Details of the tool referred to, above, the belt receptacles and the neck support are regulated by FIA and available from in it

(**Art. 14.7 not applicable to chassis F300**)

14.8. Thermal protections

14.8.1. It is authorised the thermal isolation of the following elements:

- Oil ducts.
- Ducts of engine colling fluids
- Fuel ducts
- Brake fluids ducts
- Monocoque exterior rear wall
- Electronic control units (switchboard). In any case, the seal of the control unit shall not be covered by the isolating material.
- Mechanical Elements of suspension and left rear transmission of the vehicle(in order to protect it from the high temperature of exhaust gases).
- Exhaust line and the interior surrounding surfaces (hood engine, left pontoon, etc.)
- Lower plane of the rear wing on the exhaust system side.

In any case, these protections will have no other function than the one of isolating.

14.8.2. It is authorised the fitting of the thermal isolating kit of the fuel regulator box supplied by GT Sport. This kit consist on two luitex plates which must be placed between the "top plate" engine fitting and the fuel regulation box.

14.9. Recovery container of battery fluids

It is authorised the fitting of a recovery container for the battery fluids. The Maximum capacity of this container must not exceed 200cc.

14.10. Complementary attachments

It is authorised the fitting of the following complementary attachments of the vehicle's body: engine's hood and rocker arm cover aseembly and shock absorver of the front suspension. Such attachments may be made by means of an sticky tape or similar (preferibly of a color similar to that of the bodywork) fast drive elements, similar to those the car originally fits.

For the rear hood they are also authorised, as fixing elements, those joining devices with rubber bands.

If it is done with tape, the fixation will be done acting over the joint or the separation between panels and only to this end; this fixation will be validated by the Scrutineers.

The rivets fastening the gurney to the front flaps may be substituted by bolts and nuts.

14.11. Modification of the engine cooling system for F300 chassis

The original engine cooling system is modified by a new cooling kit to simplify its maintenance. This system is compounded by:

- Expansion tank of 700 cm3 with its corresponding support
- Cover of the expansion tank with an addecuate tare.
- Water exit opening from the cylinder head with its correspondieng sealing gasket.
- Exit water hose from the cylinder head with its fitting restrictor and O-ring.
- Cylinder head cover.

The assembly of this new system, according to the drawing included in the User's Manual, implies the displacement of the right coil. (cylinders 2 and 3) towards the left.

14.12. Fitting of a second engine temperature sensor for F300 chassis

The fitting of a second sensor for the engine temperature is authorised, providing it is fitted next to the original one-in watar canalization from the cylinder head to the right radiator, with the following charateristics; it must be a thermo par sensor up to 6 mm, with a tip welded with tig.

ARTICLE 15: SAFETY STRUCTURES

15.1 Materials used for car construction

15.1.1 The use of magnesium sheet less than 3mm thick is forbidden.

15.1.2. The use of titanium and ceramic materials is forbidden. Ceramic Materials (e.g. Al2O3, SiC, B4C, Ti5Si3, SiO2,Si3N4) – These are inorganic, non metallic solids..

15.1.3. No parts of the car may be made from metallic materials with a beryllium content greater than 3%mm.

15.1.4. Within "composite" structures, the strain-to-failure of any fibrous reinforcing material must not be less than 1.5%.

15.1.5. The use of carbon or aramid fibre reinforcing materials in composite structures is forbidden except in the survival cell, frontal impact absorbing structure, rear impact absorbing structure (for chassis F305/6, F308 and F312), roll over structures, non-structural components on the engine, bodywork more than 280 mm forward the front wheel centre line and bodywork more than 200 mm behind the rear wheel centre line.

For the purpose of this article it will be considered structural parts: any part used for the fitting of the engine to the gearbox, the engine to the survival cell or that are used to transfer the load of the rear suspension to the survival cell.

15.1.2 Any repair to the survival cell or to the frontal protection structure must be carried out according to the manufacturer's specifications in a repair facility approved by the manufacturer and under the awareness of the Organising Committee.

15.1.3 The car may not be used in a further event until the technical passport has been completed satisfactorily and the authorisation of the Technical Commission of the Spanish Federation is needed.

15.1.8. ~~The surface formed by all the parts lying on the reference plane referred to in Article 3.13 must be made of wood.~~

15.2 Rollover structures for F305/6, f308 and F312 chassis:

15.2.1 The basic purpose of safety structures is to protect the driver. This purpose is the primary design consideration.

15.2.2 All cars must have, at least, two roll structures.

The principal roll structure must have its highest point at no more than 30mm behind the rear edge of the cockpit template
(Applicable to F312)

~~The principal structure must be positioned behind the driver~~.

The second structure must be in front of the steering wheel but no more than 250 mm forward of the top of the steering wheel rim in any position.

The two rollover structures must be of sufficient height to ensure the driver's helmet and his steering wheel are at least 70 mm and 50 mm respectively below a line drawn between their highest points at all times.

15.2.3. The principal structure must pass a static load test, details of which may be found in art. 15.2.4.

The second structure may be able to bear a vertical load of 75 kN applied to the top of the structure.

Each car manufacturer must supply detailed calculations which clearly show that the structure is capable of withstanding the vertical load of 75 kN. applied to the top of the structure. Each car manufacturer must supply detailed calculations which clearly show that the structure is capable of withstanding the vertical load of 75kN. Alternatively, and only following a request from the car manufacturer, the second roll structure may be subjected to a static load test using a rigid flat pad which is 100mm in diameter and perpendicular to the loading axis.

Under the load the deformation must be less than 50mm measured along the loading axis and any structural failure limited to 100 mm below the top of the roll structure measured vertically.
(Applicable to chassis F308 & F312).

The principal structure must pass a static load test, details of which may be found in art. 15.2.4.

The second structure must be capable of withstanding three loads applied simultaneously to the top of the structure which are 12 kN laterally, 45 kN longitudinally and 60 kN vertically.
(**Applicable to chassis F305/6)**

15.2.4. The principal rollover structure shall be subjected to a static load test. A load equivalent to 12 kN-13.2 kN for chassis F308- laterally, 45 kN- 49.5 kN for chassis F308-longitudinally in rearward direction and 60 kN vertically- 66kN for chassis F308- , must be applied to the top of the structure through a rigid flat pad which is 200 mm in diameter and perpendicular to the loading axis.

During the test, the roll structure must be attached to the survival cell which is supported on its underside on a flat plate, fixed to it through its engine mounting points and wedged laterally, but not in a way as to increase the resistance of the structure being tested.

Under the load, the deformation must be less than 50 mm, measured along the loading axis and any structural failure limited to 100 mm below the top of the roll structure, measured vertically.

This test must be carried out in the presence of a FIA technical delegate and using measurement equipment checked by the FIA.

Furthermore, each car manufacturer must supply detailed calculations which clearly show that the structure is capable of withstanding the same load when the longitudinal component is applied in a forward direction. Alternatively, and only following a request from the car manufacturer, the principal roll structure may be subjected to a further static load test using the same procedure as above but carried out in a forward direction.

15.2.5. The design concept of the roll structure required by art. 15.2.2 shall be free. However, the principal roll structure must have a minimum structural cross section, in vertical projection, of 1000 cm2, across a horizontal plane passing 5 cm lower than its highest point.

15.2. Roll over structure for F300 chassis

15.2.1 The basic purpose of safety structures is to protect the driver. This purpose is the primary design consideration.

15.2.2. All cars must have two roll-over structures. The first must be situated forward of the steering wheel, at a maximum distance of 25 cms. from the ring of the wheel, be at a height of, at least, as high as the wheel. The second structure must be, at least, 50 cms. behind the first one and must be high enough to let an straight line drawn from its highest point to the highest point of the first one, pass 5 cms. above the driver's helmet, with the driver normally seated in the vehicle and wearing the helmet and the safety belts.

15.2.3 These two anti-roll structures stated in art. 15.2.2. must be able to individually, and in the way they are fitted in the vehicle, withstand with 3 forces simultaneously applied on the top edge of the structure: 1.5 p laterally, 5.5 p longitudinally, and 7.5 vertically, p = 560 kg.

15.2.4 The second anti-roll structure shall be subjected to a static load test, applying the combined forces described in art. 2.3. on the edge of the structure by means of a rigid and plane plate perpendicular to the force axis. During the test, the anti-roll structure must be attached to the survival cell which will be fixed in its inner face by means of a flat plate, fixed to it through its engine mounting points and wedged laterally, but not in a way as to increase the resistance of the structure being tested. Under the load, the deformation must be less than 50mm, measured along the loading axis and any structural failure is limited to 100mm below the top of the roll structure, measured vertically. This test must be carried out in the presence of a FIA technical delegate and using measuring equipment checked by the FIA.

The design concept of the anti-roll structures required by Article 15.2.2 shall be free. However, the principal anti-roll structure must have a minimum structural cross section, in vertical projection, of 100cm², across a horizontal plane passing 5cm lower than its highest point.

15.3. Survival cell and impact protection

15.3.1. In order that every survival cell is readily identifiable by the Marshals, each one produced must incorporate three permanently embedded FIA approved transponders which are accessible for verification at any time.

(Art. 153.1. not applicable to chassis F300)

15.3.2. The survival cell must extend from behind the fuel tank in a rearward direction to a point at least 15cm in front of the driver's feet, with his feet resting on the pedals and the pedals in an inoperative position. The survival cell must have an opening for the driver, the minimum dimensions of which are given in Article 13.1. Any other openings in the survival cell must be of minimum size to allow access to mechanical components. The safety structures described in Article 15.2 must be a part of the survival cell or solidly attached to it.

15.3.3. All engine fixation points on the survival cell as shown in Drawing 5.8 must lie in one plane which is normal to the reference plane and normal to the car centre line. A tolerance of 2 mm in X-direction (along the car centre line) is permitted for manufacturing tolerances and the use of steel bushes
(Applicable to F312)

15.3.4. When he is seated normally, the sole of the driver's feet, resting on the pedals in the inoperative position, shall not be situated to the fore of the vertical plane passing through the centre line of the front wheels.

Should the car not be fitted with pedals, the driver's feet at their maximum forward extension shall not be situated to the forward of the above-mentioned vertical plane.

15.3.5. In front of the survival cell, an impact absorbing structure must be fitted. This structure need not to be an integral part of the survival cell but must be solidly attached to it.

Furthermore, it must have a minimum external cross section, in horizontal projection of 9000 mm2 at a point 50mm behind its forward-most point.(**Paragraph only applicable to chassis F308 & F312**)

15.3.6. The minimum external width of the survival cell is 34cm. This width must be maintained for a minimum height of 25cm along the whole length of the survival cell. Measured from the reference plane the minimum height of the survival cell between the two rollover structures is 55cm.

When the test referred to in Article 13.1 is carried out and the template is in position with its lower edge 525mm above the reference plane, the shape of the survival cell must be such that no part of it is visible when viewed from either side of the survival cell and from behind the survival cell.

The parts of the survival cell which are situated each side of the driver's head must be no more than 550mm apart.

In order to ensure that the driver's head is not unduly exposed and for him to maintain good lateral visibility he must, when seated normally and looking straight ahead with his head as far back as possible, have his eye visible when viewed from the side. The centre of gravity of his head must lie below the top of the survival cell at this position. When viewed from the side of the car, the centre of gravity of the driver's head will be deemed to be the intersection of a vertical line passing through the centre of his ear and a horizontal line passing through the centre of his eye.

(Applicable to F312)

The minimum height of the survival cell behind the driver is 750 mm. from the reference plane. This height must be maintained for at least 100mm either side of the car centre line and from the rear edge of the cockpit opening to a point at least 150 mm rearwards on the car centre line. Outside this prescribed minimum area of 200mm x 150mm the height may decrease at a linear rate to a height of 655mm from the reference plane with a maximum angle of 70° measured parallel to the reference plane and normal to the car centre line and must join the horizontal line at 655mm with a radius of at least 20mm. The surfaces joining the prescribed minimum area of 200 mm x 150 mm at a height of 750mm from the reference plane and the area of the survival cell at the height of 655mm from the reference plane must be flat or may have a concave radius, this radius being applied after the straight line with the correct angle connecting the two areas has been defined.

From the rear edge of the cockpit template until the rear end of the survival cell, each cross section of the survival cell taken normal to the car centre line must:

- be symmetric to the car centre line on its external shape,
- have a minimum height of 655mm maintained over a total width of at least than 520mm.

Exception to this might be made for any opening in this area accessing the fuel tank and /or refuelling connectors
(Applicable to F312)

Furthermore, the parts of the survival cell which are situated each side of the driver's helmet must be no more than 550mm apart and at least as high as a line parallel to and 240mm below the line between the tops of the two roll structures. In order to maintain good lateral visibility, the driver when seated normally with his seat belts fastened and looking straight ahead must have his eyes above the top of the sides of the survival cell.

15.3.7. Furthermore, the survival cell and the frontal impact absorbing structure described in Art. 15.3.5., shall be subjected to an impact test against a solid vertical barrier placed at right angles to the car centre line.

All parts which could materially affect the outcome of the test must be fitted to the test structure which must be solidly fixed to the trolley through its engine mounting points but not in such a way as to increase its impact resistance.

The fuel tank must be fitted and must be full of water.

A dummy which weights, at least 75 kgs .must be fitted with the safety belts described in art. 14.4 fastened. However with the safety belts unfastened the dummy must be able to move forwards freely in the cockpit.

The extinguishers as described in art. 14.1 must also be fitted.

For the purpose of this test, the total weight of the trolley and the test structure shall be 560 kgs. And the speed of the impact 12 metres/sec..

The resistance of the test structure must be such that during the impact:

- The average deceleration over the first 150 mm of deformation does not exceed 5 gr.
- The average deceleration of the trolley does not exceed 25 g.
- The peak deceleration in the chest of the dummy does not exceed 60 g for more than 3 ms.

Furthermore there must be no damage to the survival cell or to the mountings of the safety belts or fire extinguishers.

This test must be carried out in the presence of a FIA technical delegated in an approved testing centre,, on the survival cell subjected to the tests described in art. 15.2.4, 15.3.8, 15.3.10 and 15.3.11 and on the frontal impact absorbing structure identical to the one which was subjected to the test described in art. 15.3.9.
(Art. 15.3.7. applicable to chassis F308 & F312)

At least, that part of the survival cell forward of a transversal section 20cm to the rear of the front wheel axis, shall be subjected to an impact test against a solid vertical barrier placed at right angles to the centre line of the car.

If such a part is tested separately from the rest of the survival cell it must be attached to the trolley in such a way that it does not increase the impact resistance of the structure being tested.

For the purposes of this test, the total weight of the trolley and test structure shall be 560kg and impact speed, 12 metres/sec.

The resistance of the test structure must be such that during the impact the average deceleration of the trolley does not exceed 25g.

Furthermore, all structural damage must be contained in the zone ahead of the front wheel axis.

This test must be carried out in the presence of an FIA technical delegate in an approved testing centre.
(Art. 15.3.7 applicable to chassis F300/306)

15.3.8. In addition, the survival cell must be subjected to three separate static lateral load tests:

1) In the cockpit area on a vertical plane passing through the centre of the seat belt lap strap fixing.

2) In the fuel tank area on a vertical plane passing through the centre of the area of the fuel tank on side elevation.

3) On a vertical plane passing halfway between the front wheel axis and the top of the first rollover structure.

For the tests described above, a pad 10 x 30cm, with a maximum radius on all edges of 3mm and conforming to the shape of the survival cell, shall be placed against the outermost sides of the survival cell with the lower edge of

the pad at the lowest part of the survival cell at that section. Rubber 3mm thick may be used between the pads and the survival cell.

A constant transverse horizontal load of 20 kN shall be applied, less than 3 minutes, at the centre area of the pads, through a ball joint, and maintained for a minimum of 30 seconds.

Under these load conditions, there shall be no structural failure of the inner or outer surfaces of the survival cell and permanent deformation must be less than 1mm after the load has been released for 1 minute.

The deformation will be measured at the top of the pads across the inner surfaces. In test 1, deflection across the inner surfaces of the survival cell must not exceed 2cm.

15.3.9. To test the attachments of the frontal impact absorbing structure to the survival cell, a static side load test shall be performed on a vertical plane passing 40cm in front of the front wheel axis.

A constant transversal horizontal load of 30 kN must be applied to one side of the impact absorbing structure using a pad identical to the one used in the lateral tests in Article 15.3.8. The centre of the area of the pad must pass through the plane mentioned above and the mid point of the height of the structure at that section.

After 30 seconds of application, there must be no failure of the structure or of any attachment between the structure and the survival cell.
During the test the survival cell must be resting on a flat plate and solidly secured to it but not in a way that could increase the strength of the attachments being tested.

15.3.10. A further static load test must be carried out on the survival cell from beneath the fuel tank. A pad of 20cm diameter must be placed in the centre of the area of the fuel tank and a vertical upwards load of 10Kn applied in less than 3 minutes through a ball joint. The load must be maintained for a minimum of 30 seconds.

Under these loads conditions, there must be no structural failure of the inner or outer surfaces of the survival cell and permanent deformation must be less than 0.5mm after the load has been released for 1 minute the measurement being taken at the area centre pad.

15.3.11. A further static load tests must be carried out on the survival cell. Two pads, each of which is 100mm in diameter, must be placed on both sides of the cockpit rim with their upper edges at the same height as the top of the cockpit side with their centres at a point 250mm forward of the rear edge of the cockpit opening template longitudinally.~~on each side of the cockpit opening. A pad of 10cm diameter must be placed with its upper edge at the same height as the top of the cockpit side with its centre at a point 200mm forward of the rear edge of the cockpit opening template longitudinally~~.

A constant transverse horizontal load of 15kN will then be applied at 90° to the car centre line, less than 3 minutes, through a ball joint. The load must be maintained for a minimum of 30 seconds.

Under the load ~~conditions~~, there must be no structural failure of the inner or outer surfaces of the survival cell, and the total deflection must not exceed 20mm.~~there must be no more than 10mm total deformation and.~~ The permanent deformation must be less than 1.0mm after the load has been released for 1 minute, the measurements being taken at the centre of the area of the pad.

15.3.12. To test the attachments of the rear impact structure to the gearbox, a static side load test shall be performed. During the test the gearbox and the structure must be solidly fixed to the ground but not in a way that could increase the strength of the attachments being tested.
A constant transversal horizontal load of 30kN must then be applied to one side of the impact absorbing structure, using a pad identical to the ones used in the lateral tests in Article 15.3.8, at a point 470mm behind the rear wheel centre line.
The centre of the pad area must pass through the plane mentioned above and the mid point of the height of the structure at the relevant section. After 30 seconds of application, there must be no failure of the structure or of any attachment between the structure and the gearbox.
(Applicable to F312)

15.3.13. The static load tests in Article 15.2.4; 15.3.8, 15.3.9, 15.3.10,15.3.11 and 15.3.12 must be carried out in the presence of a FIA technical delegate and using measuring equipment verified by the FIA.

Any significant modification introduced into any of the structures tested shall require that part to undergo a further test.

15.3.14. In order to ensure all survival cells are manufactured in the same way, each constructor must submit the weight of every survival cell produced. These weights will be compared with that of the survival cell which was subjected to the tests in 15.3.8, 15.3,9, 15.3.10 and 15.3.11. If any survival cell weighs less than 95% of the one previously tested, it will then have to be subjected to the tests above.

The FIA reserves the right to carry out the static load tests in Article 15.2.8, 15.3.9, 15.3.10 and 15.3.11 at random on any other chassis produced by the manufacturer.

These tests will be carried out with 80% of the load referred to in these Articles and during these tests the deflection of the reference chassis may not be exceeded by more than 20%.

15.4. Side intrusion test

15.4.1. In order to give additional protection to the driver in the event of a side impact, a flat test panel of uniform construction, which is designed and constructed in order to represent a section of the survival cell sides, must pass a strength test. Details of the test procedure may be found in art. 15.4.2 and 14.4.3.0.

With the exception of local re-enforcement and/or inserts, the lateral parts of the survival cell must be manufactured to the same specification as a single panel which satisfies the requirements of art. 15.4.3. Parts to this tested specification must cover an area which:

- Begins at least 250 mm high at the front wheel centre line.
- Tapers at a linear rate to at least 350 mm high at the front of the cockpit opening and remain at this height to the rear of the survival cell
- It's no less than 100 mm above the reference plane between the front of the cockpit opening and the rear of the survival cell.

Any openings or cut outs in this area must be of a minimum size to allow access to mechanical components.

15.4.2. The test must be carried out in accordance with FIA Test Procedure 02/00 in the presence of FIA technical delegates and by using measuring equipment which has been calibrated by the FIA technical delegate.

15.4.3. The test panel must be 500 mm x 500 mm and will be tested by forcing a rigid truncated cone through the centre of the panel at a rate of 2mm (+/- 1 mm) per second until the displacement exceeds 150 mm.

During the first 100 mm of displacement the load must exceed 150 kN and the energy absorption must exceed 6000J. There must be no damage to the fixture or border before these requirements have been met.

Once the requirements of Articles 15.2.4, 15.3.2, 15.3.4, 15 3.5, 15.3.6, 15.3.7, 15.3.8, 15.3.9, 15.3.10, 15.3.11 and 15.4 have been met, panels no less than 6.2mm thick must then be permanently attached to the survival cell sides. These panels must:

- in a longitudinal sense, cover the area lying between two vertical planes, one 125mm forward of the cockpit entry template and one 50mm to the rear of the template. A 50mm horizontal linear taper may be included at both ends;

- in a vertical sense, cover an area which has been constructed in accordance with Article 15.4.1;

- be constructed from 16 plies of Zylon and two plies of carbon according to the following precise lay-up details:

The panel shall be constructed from Torayca T1000G or a FIA approved substitute and Toyobo High Modulus Zylon (PBO) fibres, impregnated with a toughened, elevated cure temperature, epoxy resin system. If different resins are used for the T1000G or the FIA approved substitute and Zylon reinforced plies, they must be co-curable.

The construction of the panel shall be quasi isotropic and shall avoid darts, joins or gaps in any ply, apart from those required to cover complex geometry, cut outs for wiring and side impact structures.

Rebates shall be permitted in the outer four Zylon plies only, for the attachment of external bodywork. Any joins required in each ±45 degree ply, to cater for a finite material roll width, shall overlap by at least 10mm and be staggered through the laminate, to avoid super-imposing.

The panel must be cured to the manufacturer's recommended cure cycle. The panel will be bonded to the chassis over the entire surface area with the prescribed film or paste adhesive.

Zylon HM – 300gsm:

Minimum average weight [285]gsm, 6K fibres per tow, in a 2 X 2 twill weave style, impregnated with an epoxy resin.

T1000G or FIA approved substitute – 280gsm:

Minimum average weight [269]gsm, 12K fibres per tow, 2 X 2 twill weave or 5 harness satin weave, impregnated with an epoxy resin.

Matrix System:

MTM49-3 or Cycom 2020 epoxy resin. Alternatively, it is permissible to replace the approved resin system with the primary matrix system used for the homologated side intrusion panel.

Adhesive (to chassis):

Film adhesive 150gsm 3M AF163-2 or paste adhesive 3M 9323 B/A

Stacking Sequence (0 degree represents longitudinal axis of the chassis):

Outer surface
1 ply T1000G or FIA approved substitute (0/90)
16 plies Zylon (±45, 0/90)8 or (±45, 0/90, 0/90, ±45)4
1 ply T1000G or FIA approved substitute (0/90)

Inner surface
Thickness: the minimum thickness of the cured panel, excluding the adhesive, shall be [6.2]mm.
Area Weight: the minimum area weight of the cured panel, excluding the adhesive, shall be [8700]gsm.

Voids

The panel shall be essentially void free.

Examples of Compliant Materials

1. Supplied by Cytec:
Zylon HM-300gsm/2x2 twill with Cycom2020 epoxy resin (NOM 42% by weight)
T1000G-12K or FIA approved substitute 280gsm/2x2twill or 5 harness weave with Cycom2020 epoxy resin (NOM 42% by weight)

2. Supplied by ACG:
Zylon HM-300gsm/2x2 twill with MTM49-3 epoxy resin (NOM 43% by weight)
T1000G-12K or FIA approved substitute 280gsm/2x2twill or 5 harness weave with MTM49-3 epoxy resin (NOM 40% by weight)

(Applicable to F312)

15.4. Side protection structure for chassis F300

15.4.1. On both sides of the car, continous pannels must be extended, at a maximum distance of 55 cms. from the longitudinal axis of the car between at least the transversal planes situated on the rear wall of the fuel deposit and the front extremity of the cockpit minimum opening (art. 13.1.) and at a minimum distance of 35 cms. from the longitudinal axis of the car between, at least, the transversal planes which pass through the previos extremity and the front arch. Their projection over a vertical plane paralell to the longitudinal axis of the car will be at least 15 cms. high.

15.4.2. These panels will be made with a composite material with a minimum section of 30 cm2, with a metal or nomex nucleous in honeycomb, which provides a suitable resistance to compression. The outer layers will be made in aluminum alloy, plastic and carbon fibre with a minimum thickness of 0.5 mm, or any other set of materials with an equivalent effectiveness. The panels must be fixed solidly to the flat bottom and, in their upper part, to the main structure of the vehicle, so that the absorption of a lateral shock is ensured. The radiators can have the function of pannel protection or transversal up-right.

15.5. Rear Impact Structure

15.5.1 An impact absorbing structure must be fitted behind the gearbox symmetrically about the car centre line with its rearmost point between 550 mm and 620 mm behind the rear wheel centre line. It must also have a minimum external cross section, in horizontal projection of 9000 mm2 at a point 50 mm forward of its rearmost point. When calculating this area only those parts situated less than 100 mm from the car centre line may be considered and the cross section may not diminish forward of this point.

The structure which was subjected to the test described in art. 15.3.12.must pass an impact test and be constructed from materials which will not be substantially affected by the temperatures it is likely to be subjected to during use. Details of this test procedure may be found in art. 15.5.2.

15.5.2. All parts which will be fitted behind the rear face of the engine and which could materially affect the outcome of the test must be fitted to the test structure. If suspension members are to be mounted on the structure they must be fitted for the test. The structure and the gearbox must be solidly fixed to the ground and a solid object having a mass of 560 kg. And travelling at a speed of 10 m/s, will be projected into it.

The object used for this test must be flat, measure 450 mm wide by 550 mm high and may have a 10 mm radius on all edges. Its lower edge must be at the same level as the car reference plane and must be so arranged to strike the structure vertically and at 90º to the car centre line.

During the test, the striking object may not pivot in any axis and the crash structure may be supported in any way provided this does not increase the impact resistance of the parts being tested.

The resistance of the test structure must be such that during the test:

- The average deceleration of the object does not exceed 35 g.
- The maximum deceleration does not exceed 60 g for more than acumulative 3 ms, this being measured only in the direction of impact.

Furthermore, all structural damage must be contained within the area behind the rear wheel centre line.
(Art. 15.5 not applicable to chassis F300)

15.6. Structural Damages

In case of serious accident, GT Sport will determine the obligation or not to repair or to replace the chassis or any of its main parts.

In case it is necessary to carry out the repair or substitution, only Dallara Automobile, under the supervision or command of GT Sport, will be able to carry out the corresponding repair.

ARTICLE 16: FUEL

16.1 Fuel

CDI - Specifications (Appendix J. Art. 258.16)

- 102RON/90MON maximum; 95RON/85MON minimum for unleaded fuels and 100RON/92MON maximum; 97RON/86MON minimum for leaded fuels, the measurements being made according to the standards ASTMD2699-86 and D2700-86, the fuel being accepted or rejected according to ASTMD3244 with a confidence limit of 95%.
- Specific gravity between 720 and 785kg/m³ at 15°C (measured according to ASTMD4052).
- A maximum of 2.8% oxygen for leaded fuel or 3.7% if the lead content is less than 0.013g/l, and 0.5% nitrogen by weight, the remainder of the fuel consisting exclusively of hydrocarbons and not containing any power boosting additives.
- The measurement of the nitrogen content will be carried out according to the standard ASTMD3228, and that of the oxygen by elemental analysis with a tolerance of 0.2%.
- Maximum content of peroxides and nitro oxide compounds: 100ppm (ASTMD3703).
- Maximum lead content: 0.40g/l or the standard of the country of the event, if this is lower (ASTMD3341 or D3237).
- Maximum benzene content: 5% in vol. (ASTMD3606)
- Maximum Reid vapour pressure: 900hPa (ASTMD323)
- Distillation at 70°C: 10% - 47% (ASTMD86)
- Distillation at 100°C: 30% - 70% (ASTMD86)
- Distillation at 180°C: 85% min (ASTMD86)
- Maximum final boiling point: 225°C (ASTMD86)
- Maximum residue: 2% volume (ASTMD86)

16.2 Air

Only air may be mixed with the fuel as an oxidant.

16.3 Fuel of the European F3 Open 2012

The make and type of fuel to be used will be unique and exclusive and it will be provided by the Organising Committee of the Series.

ARTICLE 17: COMUNICATION DRIVER - TEAM

It is authorised the communication between the driver and his team by means of radio systems providing that its solely function is the transmission of human voice. To this end it is permitted to drill the front part of the bodywork unique and exclusively to place the radio anthens.

ARTICLE 18: HANS

Drivers shall compulsory use hans complying with FIA normative, (Appendix L to the ISC -Chapter III, art. 3).

ARTICLE 19: FINAL TEXT

19.1. The final text for these regulations shall be the Spanish version, which will be used, should any dispute arises over their interpretation. The only mission of titles and characters of this document is to ease the references of the present technical regulations.

19.2. Any modification of the FIA, further to these regulations, will be supervised by the Organising Committee and-if taken into consideration-it would be proposed for its inclusion in the present regulations by means of an appendix.

19.3. ~~Those modifications approved by FIA for the new chassis 2012 subsequently to the publication of these regulations will be added to the present technical regulations by means of appendixes~~.

El Presente Anexo queda aprobado a efectos deportivos.
Madrid,
Real Federación Española de Automovilismo
Fdo.: Fco. Javier Sanz Merinero
Director Deportivo
23 de abril de 2012